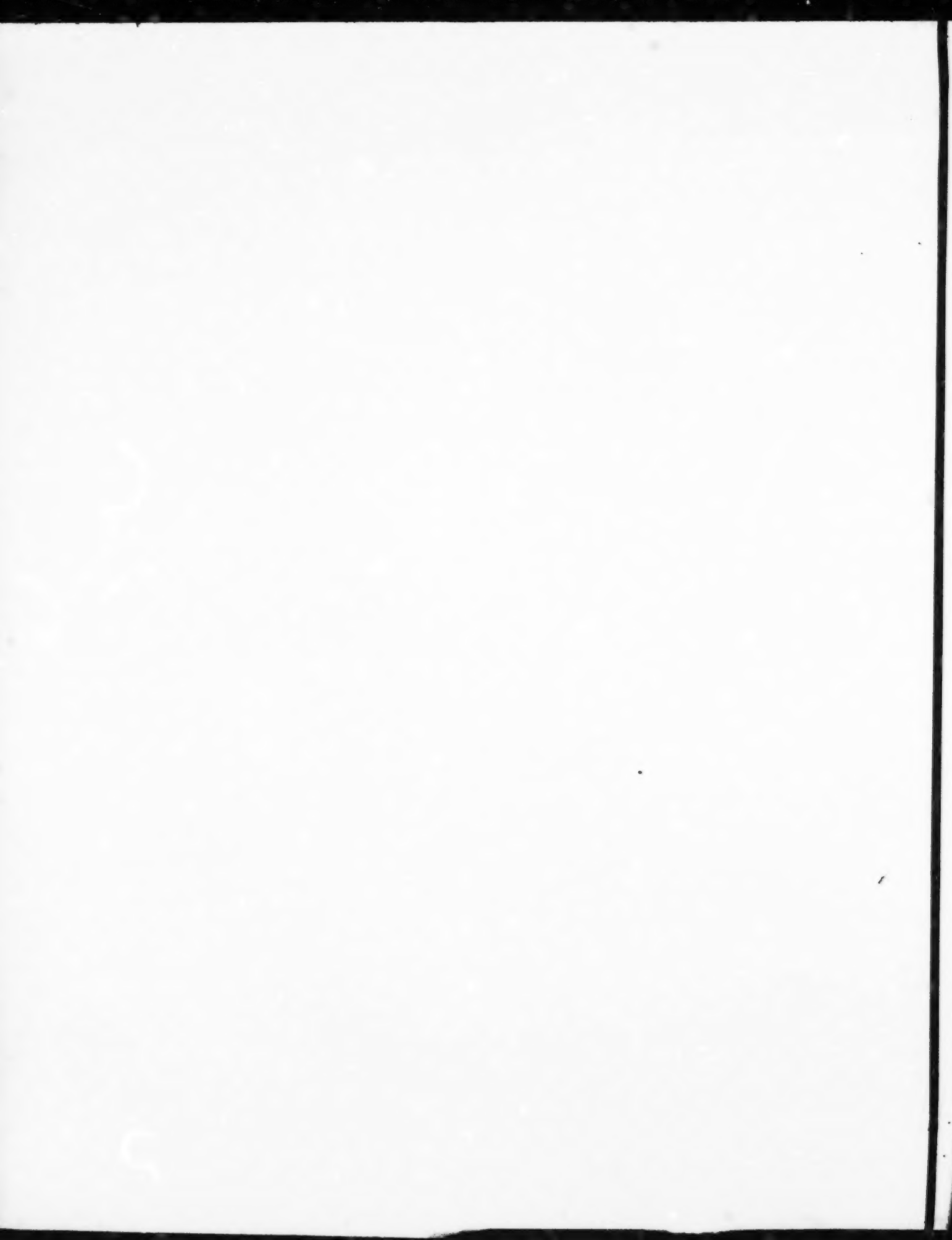


Two Perspectives on Forestry: National and Provincial

**Fitting the Future
Together**

Alberta
ENERGY AND
NATURAL RESOURCES



TWO PERSPECTIVES ON FORESTRY: NATIONAL AND PROVINCIAL

Excerpts from speeches delivered by
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Energy and Natural Resources

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SECTION I

THE FUTURE DEVELOPMENT OF ALBERTA'S FOREST RESOURCES

Alberta Forest Products Association

Annual Meeting

Jasper, Alberta

September 30, 1983

I want to begin by thanking the Alberta Forest Products Association for inviting me to talk to you today about the future development of Alberta's forest resource. The crystal ball I have used is a personal one and reflects my own viewpoint and opinions.

It is important to emphasize that no one knows for sure how the forest resource will be developed. Alberta has established a competitive and consultative process for the disposition of its timber.

The Forest Service identifies forest areas with surplus allowable cut, and provides this information to anyone who requests it or expresses an interest in timber development. When someone with the capability to develop an area of timber requests timber for a development, the minister is advised and may agree to advertise the area for development proposals. In recent years, the minister has usually consulted with the forestry caucus committee and with his cabinet colleagues before making this decision.

Once the province has advertised for development proposals, a period of six months to a year is given to allow everyone who is interested to investigate the resource and prepare proposals. The proposals are then presented and discussed at public hearings to inform the public, particularly local residents, and obtain their views and comments on the various development options. The input received at the hearings often results in negotiated adjustments to the proposals.

Once proposals have been finalized, recommendations are made to the minister by both the department and forestry caucus committee. The minister, in consultation with cabinet, may then decide to award timber to one or more of the proponents, subject to certain development commitments, or to make no award. If an award is made, under conditions which are acceptable to the proponents, the department then drafts a forest management agreement with the proponent, which firmly establishes the terms and conditions under which the timber rights are being allocated. The final forest management agreement must be approved by the executive council before it may be executed by the minister on behalf of the province.

So it can be seen that major timber developments must be initiated by an investor, and none will occur until and unless investors believe they make economic sense. Nevertheless, it is interesting and perhaps informative to identify Alberta's forest resource potential, and that is what I will try and do today.

Many of you here today are very knowledgeable about Alberta's forest resource, but because the current situation so strongly influences what will happen in the future, and because there are some among us who would appreciate some background, I will take a few minutes to describe the status and extent of Alberta's forest resource.

Most of northern Alberta is covered with a boreal mixedwood forest in which white spruce and two poplar species (aspen and balsam poplar) predominate. Extensive stands of jack pine exist in the northeast. There is coniferous sub-alpine forest of considerable magnitude along the eastern foothills, from Grande Prairie to the U.S. border. This sub-alpine forest accounts for more than half of our total timber production, although it covers only 26,000 square miles as opposed to 100,000 square miles in the northern boreal.

Productivity

Alberta's productive forest lands total 21 million hectares, or 42 per cent of the productive forest area in B.C. This places us fourth in Canada, with about half as much productive forest land as either Ontario or Quebec.

Because Alberta has deep fertile clay and silt soils extending to its northern boundary, our productive lands are among the best in Canada's boreal forest, although they fall well below the productivity of the B.C. coast, montane and Columbia forest regions, and below most of the St. Lawrence lowlands and Maritime provinces. Under full stocking, softwood growth here could generally average about four cubic metres per hectare per year over a 70-year rotation. So the potential exists to produce 80 million cubic metres, or 18 billion board feet (log scale), of coniferous timber per year. Actual productivity is much below this figure, primarily because of fire losses, poor age-class distribution, inadequate stocking and under-utilization.

Supply

The actual calculated annual allowable cut of softwoods from Alberta's existing forest growing stock is 14.6 million cubic metres or 3.4 billion board feet (log scale).

There is an additional allowable cut of 13.5 million cubic metres of hardwood or almost six million cords, nearly all of which is poplar. The comparable softwood annual allowable cut figure for British Columbia is 73.5 million cubic metres, which is roughly five times the Alberta softwood cut.

Utilization

The present level of harvest in Alberta is about 7.4 million cubic metres, 7.2 million cubic metres of it softwood. We have only one company, Weldwood, using poplar in commercial quantities. However, Pelican will be opening a major plant in Edson next week. This plant, the only major addition to our forest industry in 1983, will produce 50 million square feet (three-eighths-inch) per year of oriented strand board, the most advanced type of wafer board yet developed.

In the fiscal year ending March 31, 1982, Alberta produced: 1.048 billion board feet of lumber and plywood logs; 303,000 units of chips; 625,000 cords of pulpwood; 80,000 railway ties; and 12 million cubic feet of fence posts and rails, nearly all of it softwood. The chips and pulpwood were converted into about one-half million tons of bleached kraft pulp.

The value of these products is estimated at just over half a billion dollars per year. This is about five per cent of the annual value of manufacturing shipments in the province. The industry created about 6,500 person years of direct employment.

These figures are modest by British Columbia standards where more complete utilization of the annual cut has allowed a harvest 10 times greater than in Alberta. Nevertheless, in comparison with other provinces, Alberta's forest industry is tied with New Brunswick for fourth place, behind British Columbia, Ontario and Quebec.

Management of Alberta's Forests

Nothing is more critical to the future of our forest industry than good management of the forest resource. Land-use policies are an important requirement for successful forest management. One cannot practise forestry, certainly not on a sustained-yield basis, without a secure land base.

Land-Use Policy

Since 1948, Alberta has set its forest lands aside in a Green Area, within which indiscriminate land sales or settlements are forbidden. Land can be withdrawn from the Green Area only after a review has established that the lands are better suited to a use other than forestry. Such withdrawals normally occur on the periphery of the forest, as road and other services are extended logically to expand farming areas. The bulk of these withdrawals occur in the Peace River-Fort Vermilion area.

Forest Management Agreements

Another important provision was the development of the forest management agreement in 1954. These agreements provide long-term tenure in that they are issued with terms of 20 years which are renewable. Initially, the agreements conveyed only timber cutting rights, although sustained-yield management was mentioned. In 1958, however, the rights were broadened to include the right "to manage, cut and remove the timber from the pulpwood lease area...." In 1963, the wording was further amended to read as follows: "The Minister gives to the Company the right to enter upon and use the land to grow and harvest timber in accordance with the terms of this Agreement." It can be seen that the forest management agreements have evolved from timber cutting rights to a continuing right to use the land for timber production and harvest.

From the beginning, the agreements have required that harvest be established at sustainable levels, based on a forest management plan which projects harvest levels for the entire rotation, which at present is 80 years for pine and spruce on most agreements in Alberta.

Forest-management planning standards are high. Each plan must be based on a completed and thorough forest inventory which accurately measures the volume and area of each age class in the forest, so that realistic growth projections can be made and age-class problems identified. Priority is given to removing the oldest timber first, even though it may not be the closest to the mill. This fact alone, the removal of the decadent stand and retention of the younger stands which are still growing, is having a positive effect on average growth rates.

All forest management agreements require complete reforestation of all cut areas to provincial standards.

At the present time there are five active forest management agreement areas in Alberta, covering 15,000 square miles (30 000 square kilometres) or 10 per cent of our provincial forest lands. Yet these areas account for much more than half of the total value of Alberta's primary timber production.

Timber Quotas

Long-term timber rights are conveyed by quota where an industrial establishment, such as a sawmill, cannot achieve complete utilization of the entire softwood forest. In the future, as sawmills are able not only to use some six- and four-inch trees but can economically use timber stands composed primarily of such small trees, it may be possible to consider forest management agreements in place of quotas in some situations. Improved chip markets are probably a prerequisite to this happening.

Of course, quotas are issued for 20-year renewable terms, just like forest management agreements. The difference is that the quota does not give a land-use and forest-management right as does an agreement. The quota is a volume agreement, whereby the Forest Service manages an identified forest management unit to supply an agreed volume of wood.

All quota cuts are reforested at the expense of the quota holder, although most have chosen to pay the Forest Service to do this work. Where conversion to a forest management area is being considered in the future, the quota holder might first demonstrate his capability by undertaking to do his own reforestation. At the present time, all forest inventory and forest management planning is done by the Forest Service, but the quota holder does his own annual operation plan for Forest Service approval.

Pine Ridge Nursery

Any effective forest management program requires reliable and adequate supplies of high-quality seed and seedlings. Until 1981 this was a real problem in Alberta, as inadequate nurseries were unable to provide adequate stock on a reliable basis.

These problems have been solved with the establishment of a new forest nursery near Smoky Lake. The nursery was completed in 1980 at a capital cost of just over \$12 million. It included a major seed extraction and seed cleaning plant, as well as a first-class seed storage facility. Tree seed is extracted, cleaned, sorted and stored for the forest industry without charge as well as for the Forest Service.

The nursery was originally built to grow 10 million containerized and 10 million bareroot seedlings per year. This capacity is now expanded to a total of 36 million seedlings per year, of which 20 million will be container seedlings and 16 million bareroot.

The nursery currently has a modest genetics laboratory and greenhouse. It was recently decided to improve and expand this facility at a cost of more than \$1 million, so the final cost of the expanded nursery and genetics facility will be about \$16 million.

The size and quality of the seedlings out of Pine Ridge is now remarkably good, and there is no question that this facility has improved planting success and field survival in a major way.

Forest Fire Control

Forest fire control in the unmanaged forests of northern Alberta is a severe problem. There are vast areas, almost 50,000 square miles or 130 000 square kilometres, in northern Alberta which are not now under management but which have regenerated to pure or mixedwood stands of spruce and pine with poplar, following extensive fires in the period 1930 to 1960.

These represent a major resource potential and could support a much expanded forest industry in Alberta beginning in 2010. Unfortunately, extreme weather conditions in 1980, 1981 and 1982 have resulted in major fire losses of more than 16 000 square kilometres in this area. This loss was in spite of a major fire control effort involving expenditures of more than \$170 million in three fire seasons.

Major improvements have been made to our fire control organization in the past three years with the installation of a complete lightning detection system and by increasing our initial-attack resources. There is every indication that these improvements paid off this spring when the Forest Service was able to cope very effectively with a severe hazard period. Continued diligence will enable us to retain our young northern forests as a basis for a much expanded forest industry in the North in 40 or 50 years' time.

Intensive Silviculture

At the present time, Alberta is concentrating on basic forestry: prompt and complete reforestation; improved forest protection; better stand utilization; and intelligent harvest scheduling to replace old, diseased, damaged and low-vigor stands with healthy young regeneration.

However, we are aware that this approach needs to be supplemented with further measures if the growing of forest crops is to make efficient use of the land. The intensive management priorities in Alberta are as follows:

1. Drainage

There are 28 million acres (11 million hectares) of muskeg or peat bog in Alberta's forest areas. While some of this has excellent long-term potential as an energy source, and some is important for water flow regulation, there are at

least 10 million acres (four million hectares) which could be drained and added to the productive forest land base at reasonable cost. This potential is just now being examined and experimental drainage programs are now being developed.

2. Genetic Improvement

The Alberta Forest Service and the forest industry have combined their efforts in a well-planned tree improvement program. Emphasis is on the use of superior lodgepole pine and white spruce seedlings in our reforestation efforts. We have already identified a large number of superior trees of both species and are beginning to establish seed orchards to preserve this superior stock and provide convenient sources of superior seed.

3. Tree Improvement Committee

We have also established a tree improvement committee, with strong participation from the forest industry. The committee is considering the allowable cut increases which are likely to occur from such activities as juvenile spacing, fertilization, cleaning and weed tree removal, genetically-improved planting stock, thinning, drainage, and improved species-site combinations.

The significance of our emphasis on forest management is that it has placed our forest industry on a secure basis for the future. All of our mills have secure future wood supplies, although most will have to make the adjustment to six- and four-inch trees since the future wood flow will be in smaller trees, as the old-growth timber is replaced by younger wood.

Looking to the Future

However, our future is much brighter than simply maintaining the status quo. Alberta currently has seven million cubic metres of surplus softwood annual cut, enough to enable us to double our production. This can and should occur within the next 20 years. After that time, there will be a static period of about 20 years' duration, after which further expansion will be possible.

Where and how will this doubling of our forest industry occur? In my view, development will follow the concentrations of softwood timber. The areas with the highest spruce and pine content will be developed first, followed sequentially by mixedwood forest areas. Extensive areas of pure poplar are unlikely to see early development for the reasons mentioned previously. There may be limited exceptions to this where we have concentrated stands of high-quality aspen suitable for the development of a third and possibly a fourth aspen board plant.

Following this prognosis, it would seem likely that we will see the following developments:

1. A major (800 tonne) bleached kraft pulp mill in the Whitecourt area, based on existing forest management areas and large volumes of purchase chips. This mill is likely to be coupled with a major (100 million board foot) sawmill but should have a wood room for the processing of very small logs as round pulpwood. A wood room may be important to

quota holders whose conversion to six-and four-inch trees is limited by economics so that they will want a place to sell small-diameter roundwood. Many of those who previously thought that pulp mills with wood rooms were obsolete may have changed their minds after looking closely at the Alberta smallwood situation. I say this in spite of the excellent ideas and equipment now available for facilitating the sawing of small logs, at least in those mills with a large timber supply.

2. A small (300 - 450 tonne) chemi-mechanical pulp mill coupled to a paper mill in the Rocky Mountain House area, associated with a major sawmill and a number of significant expansions to existing sawmills in the area based on quota increases. The timing of this development is highly doubtful but, even if it does not occur in the next year or two, it is an excellent project with good economics and will likely be carried forward by someone before too long.
3. Expansions to a number of existing sawmills based on quota expansions should be facilitated by improved demand for chips. These expansions will depend on an improved lumber market, with a prolonged period (18 - 24 months) of dimension lumber prices above \$200 per thousand. There will also likely be some consolidation of existing mills in order to achieve the efficient utilization of large volumes of small trees.

4. Modest expansions to both existing kraft mills is likely but the timing is unknown. High kraft prices could result in these projects occurring in four or five years' time.
5. By the end of the 1980s it seems probable that we will see the establishment of a major chemi-mechanical pulp mill (600 tonnes per day) coupled to a paper mill on the Athabasca River near the town of Athabasca. A sawmill will likely accompany this development but constrained softwood supplies will limit its size. This complex will utilize aspen to make up to 50 per cent of its wood supply. However, the main attraction of this area lies in the availability of large volumes of softwood which are mixed with hardwoods over extensive areas. While these softwoods are too scattered to be logged separately at an acceptable wood cost, they can be economically logged in combination with the aspen pulpwood, providing a significant quality advantage over pure hardwood areas in other parts of the world.
6. During the 1990s another major (600 - 800 tonne) chemi-mechanical pulp and paper mill is possible on the Peace River, near Peace River, Manning or Fort Vermilion. Again, there is likely to be a medium-sized sawmill in association with such a mill.
7. During the later part of the 1990s it is possible that a third chemi-mechanical pulp and paper mill will be constructed in the vicinity of Fort McMurray. Wood supply

constraints would limit the size of such a mill to 300 - 450 tonnes per day, and it would be associated with a medium-sized (50 million board foot per year) sawmill.

The cumulative totals for this development scenario are:

- 1 000 tonnes per day of additional kraft pulp production;
- 2 000 tonnes per day of chemi-mechanical pulp-paper production, a development which will also lead to a major publishing and printing industry in Alberta, serving the western interior of North America;
- 500 million board feet of additional softwood lumber production;
- and, if we consider the two additional board plants, another 100 million square feet of board production.

The combined job creation from these projects would be approximately 6,000 jobs and the investment required would reach \$2 billion in 1983 dollars.

I am the first to admit that I have developed a list that many consider optimistic. Perhaps it is. But look back over the past 20 years and you will realize we have more than doubled our pulp production, more than doubled our lumber production and added a whole new flakeboard industry.

I think we can do it again.

Forestry in Alberta



SECTION II

FOREST MANAGEMENT IN CANADA TODAY

Canadian Institute of Forestry

Sault Ste. Marie, Ontario

October 5, 1983

Benefits Enjoyed from Canada's Forests

Canada's forests produce about 150 million cubic metres of industrial wood annually, with some room to expand to about 200 million cubic metres by harvesting remote forests and low-quality hardwoods. This annual timber harvest supports a forest industry which directly employs over 300,000 Canadians. Indirectly, about one million Canadians depend on the forest for their livelihood. Approximately \$24 billion worth of forest products are produced annually, of which \$13 billion are exported.

Our forest industries are the principal industries in every region of Canada except the Prairies and Ontario, where they still form an important part of the economy. Most of Canada's fur production and much of its tourism are dependent on the forest. In many parts of Canada the land base is not capable of producing any alternative crop, so community survival depends on continued forest production.

There is much more to forests than gross national product, employment, tax base and foreign exchange earnings. The forests of Canada are the basis for a very large part of our outdoor recreation. They dominate much of our landscape. Much of our wildlife exists within the forest ecosystem, and most of our hunting and fishing takes place in a forest setting. The forest is important to the regulation of water flow, the preservation of soil productivity, the purification of air and the moderation of climate. In fact, more Canadians relate to the forest through its recreational and aesthetic value than through timber production.

It is self-evident from the above facts that Canada's forests must be maintained in good health if we hope to maintain our standard of living and quality of life in Canada.

State of Canada's Forests

Canada's forests are immense. They cover 44 per cent of the country, extending over an area of 4.3 million square kilometres. That's the good news.

Now the bad news. Less than half our forest area consists of stocked productive forest land. Even on the two million square kilometres of productive forest land, the forests are often understocked or of low quality. Our productive forest area supports 19.6 billion cubic metres of standing timber and produces an annual volume of 150 million cubic metres of industrial wood, an average of 75 cubic metres per square kilometre. By comparison, the United States, with a forest area of three million square kilometres, supports an annual industrial harvest of 328 million cubic metres or 110 cubic metres per square kilometre. Europe, with a forest area of 1.4 million square kilometres, supports an annual harvest of 273 million cubic metres or 195 cubic metres per square kilometre, about two and a half times our productivity per unit of land area.

There is some room to expand forest production in Canada, perhaps by as much as 50 million cubic metres annually, by going into remote areas and using hardwoods of low quality. But these opportunities also exist to some extent in the United States, and there is also a real possibility that production from new areas in Canada will be largely offset by declines in regions which are now overcutting.

Nor can Canada's low rate of timber production be explained away on the basis of low natural productivity. Much of our forest land compares well with European and American forest lands. Our British Columbia coast, the St. Lawrence and the Maritime forest regions all contain very productive forest lands. Even the northern boreal forest in Canada contains extensive areas which compare favorably with northern Europe. Assuming a very low average productivity of two cubic metres per hectare a year, Canada's productive forest area of 200 million hectares is capable of producing 400 million cubic metres of timber a year.

The sad truth is that much of the differences in production is caused by our lack of forest management, and the situation is getting worse. Our standing inventory of old-growth wood is being liquidated and, as we move into more remote northern areas, our average tree size and wood volumes per unit of area are declining. The only thing that is increasing is our wood cost, to the delight of our competitors.

What's Wrong with Forest Management in Canada?

Forest management is clearly deficient in Canada. What is the problem?

To begin with, there is inadequate funding. J. H. Smyth and G. S. Ramsay of the Canadian Forestry Service report that a total of \$905.6 million was spent by all governments in Canada in the 1981-82 fiscal year on forest management. The Canadian Pulp and Paper Association reports that \$243.9 million was spent by the forest industry in 1981. So the total expenditure for forest management in

Canada was about \$1.15 billion in 1981. This was the highest expenditure level reached in Canada, and expenditures have recently declined from these levels. This level of funding amounts to about \$5 per hectare of productive forest. As an annual expenditure, \$5 per hectare would appear to be adequate if maintained annually in real values. However, when we examine the figures closely it can be seen that "forest management" has been defined in the compilation of these figures to include silviculture, protection, resource access, inventory, research, timber management and administration.

If we exclude forest access and administration costs of \$384.6 million, and set aside research costs of \$61.3 million as a separate, long-term consideration, things begin to look different. We are left with \$704 million to be spent on forest protection and "on-the-ground" management. The forest protection cost was \$303 million in 1981, leaving \$401 million or \$2 per hectare for on-the-ground forest management, that is, for silviculture, inventory and timber management.

Quite clearly, \$2 per hectare a year is not enough. A minimum of \$4 per hectare is required annually for forest inventory, forest management planning, harvest scheduling, reforestation and stand care. This allows no funds for improvement projects such as drainage or afforestation.

The inadequate funding of actual forest management shows up in many ways. While our provincial forest inventories have improved in many ways in recent years, few areas are fully and accurately inventoried for forest site productivity, soil characteristics, age

and condition of tree growth, timber merchantability and other factors essential for good forest management.

Much of our harvest scheduling is still dictated by wood cost considerations, rather than by the age and condition of the forest and a long-term plan to improve the age-class structure of the forest. Wildlife and recreational values are often unknown or, if known, ignored in our planning. Allowable annual cuts are often based on management assumptions which do not prove out in practice. There is a critical lack of reliable information on rates of growth, mortality and yield in second-growth forests. Forest research is receiving increased funding under recent initiatives by the Canadian Forestry Service. This research must be directed toward solving the problems being encountered by the practising forester and toward providing him with better information at a working level. This is just as important as the improvement of the knowledge base.

Reforestation is woefully inadequate in Canada. An average of 760 000 hectares was cut annually over the five-year period from 1975 to 1979. An annual average of 166 000 hectares of this cutover received site treatment. An average annual area of 129 000 hectares was planted. Ignoring the fact that some of the planting took place on areas which had been site treated, the maximum average annual area reforested over the five-year period was 295 000 hectares. Assuming that 30 per cent or 228 000 hectares of these cutover lands will restock adequately without reforestation, we are left with an average

annual accumulation of 237 000 hectares of unstocked cutover each year. This situation has persisted for decades. The magnitude of the total backlog of non-stocked cutover lands is not known but it is millions of hectares. Accessible lands which once grew softwood forests of spruce, pine and fir have commonly reverted to brush and low-value hardwoods.

Forest protection is improving rapidly in Canada. The creation of a national water bombing fleet of CL-215s, the establishment of the Canadian Interagency Forest Fire Centre and the general increase in forest protection expenditures by the provinces auger well in this area. Nevertheless, forest fire, insect and disease losses in Canada continue at excessive levels. Forest fire losses averaged 1.46 million acres annually over the five-year period from 1975 to 1979. At least half of this area will not regenerate to softwood forest except over a long period of time. Yet few of our burn areas are reforested, so that there is an average annual accumulation of approximately 700 000 hectares of understocked forest because of fire. When losses from insects, disease, windthrow and other natural disasters are considered, it can be seen that there are a million hectares per year being added to the backlog of understocked forest land.

What is Needed

There needs to be a national commitment to improved forest management. Considering all the activities encompassed within the

Smythe and Ramsay definition of forest management, it will take a long-term national expenditure of at least \$1.5 billion per year in 1981 dollars to stop the decline. Most of the increased funds will have to be spent on the ground, in better cut regulation, in reforestation and stand tending. Increased funding should also go to genetics (tree improvement programs), site improvement work (drainage) and forest protection, in regard to both forest fire control and insect and disease control.

Recognizing that the forest industry has been a major tax contributor to the federal government for decades, the federal government should make a long-term commitment to return all of the corporate tax revenues from the industry back into the forest for the next 20 years. This would leave the provinces and the industry with a funding requirement of slightly more than \$1 billion (1981 dollars) per year. But the combined impact of these investments would be very positive on employment and investment, and there would be substantial savings through reduced unemployment benefits and increased income taxes.

The "Framework for Forest Renewal" announced by the Government of Canada in September, 1982, which proposes a \$350 million increase in expenditures for forest management almost meets our objective. It would at least arrest the decline and avoid further additions to the backlog of brush. The problem is that the federal commitment is only for \$20 million, so that the program requires provincial governments to contribute \$330 million on top of their current expenditures. Most

of the provinces will be unable to do this at a time when budgetary deficits are high and resource revenues are static or declining.

What are the Consequences if Nothing is Done?

It is not possible for Canada to sustain a competitive forest industry on low-quality forests unless we are prepared to accept much lower living standards.

Unless our governments make a prompt and significant commitment to forest management, Canada's forest industry will soon decline. The decline of the nation's largest industry will leave all of us much poorer. Canada's economy will shrink noticeably, with a corresponding reduction to the economic benefits discussed earlier in this paper.

Conclusion

Forest management in Canada today is inadequate and incapable of sustaining the resource or the industry at current levels for very long. There is a critical need for the long-term commitment of funds for increased forest management at the applied field-management level.

Agricultural production depends on the farmer, the man who plants the crop. Forest production ultimately depends on foresters working in the field, of whom there are at present very few in Canada.

POOR

QUALITY

ORIGINAL

